

Beyond Communication Loops – Articulating the Principle of Multi-Responsiveness

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Abstract

The paper examines one of the corner-stones of the language/action (LAP) approaches: communication loop modelling. This kind of modelling is used in approaches like Action Workflow and DEMO and it includes the modelling of two fundamental roles; customer and performer. The paper extends earlier critical analysis of two-role models. It introduces the principle of multi-responsiveness, meaning that one organisational action can be a response to several different communication acts. The difference between a present triggering initiative and trans-situational background initiatives are described. The paper uses a reference case, the pizza shop case, well-known in the LAP community through earlier use in many papers.

Keywords: Business process, communication modelling, speech act, workpractice, Action Workflow, DEMO

1 Introduction

The language/action perspective (LAP) is the basis for several approaches to business process and information systems development. LAP has its origin in speech act theory (Austin, 1962; Searle, 1969; Habermas, 1984). To speak or to communicate in other ways is not only to convey some information; “to speak is to act” is the main thesis from speech act theory. LAP gets also some supplementary theoretical input from the work of Winograd & Flores (1986), especially their conversation-for-action scheme. This scheme, describing how a requester and a performer interact in order to come to an agreement concerning the performance of a task has become a classical construct. It has become a backbone in some LAP approaches, especially the Action Workflow approach (Medina-Mora et al, 1992) and the DEMO approach (Dietz, 1999). One of the key points in the conversation-for-action scheme is the conceptualisation into two roles; one who requests some task to be done and one who promises and executes the task. Other actors and circumstances are omitted from this generic model and so is the case of its successors Action Workflow and DEMO. It is visually very clear in the generic Action Workflow loop (figure 1). The two roles are called ‘customer’ and ‘performer’. The workflow loop is divided into four generic phases, which can be seen from the illustration. The DEMO approach operates with similar constructs, but other names for roles and phases. The communication loop of DEMO is called transaction.

This two-role approach in LAP has been challenged by several scholars (Goldkuhl & Röstlinger, 1999; Weigand & De Moor, 2001; Lind & Goldkuhl, 2002). The main argument has been that the two-role construct shows only customer relations and not agency relations. Another way to formulate the criticism is to say that two-role models (like Action Workflow and DEMO) concentrate on horizontal coordination at the expense of vertical coordination. Weigand & De Moor (2001) used a pizza shop case in their analysis of the limitations of two-role models. Lind & Goldkuhl (2002) continued and modified their analysis and criticism, and they used also the pizza shop example. Instead of two-role models Lind & Goldkuhl (ibid) introduced the notion of multi-role model. Dietz (2002) made a reply to the critics and the

dialogue went further on in Weigand & De Moor (2002). It is not the place here to repeat the discussion, but rather to take some steps further in the analysis of two-role models and the idea of communication loops. As Weigand & De Moor (2002) ended their commentary paper “The pizza is not ready yet”.

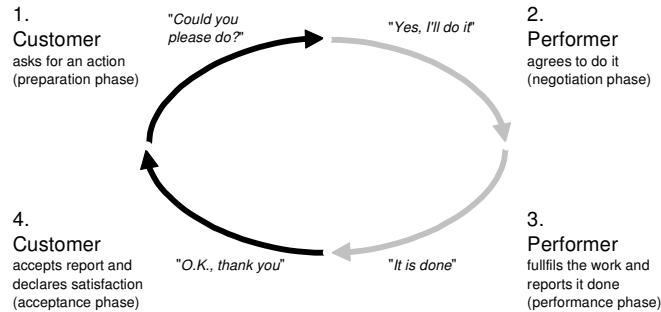


Figure 1: The Action Workflow Loop (Medina-Mora et al, 1992).

The purpose of this paper is to further critically examine the idea of two-role models and communication loops. I will do this by introducing a *principle of multi-responsiveness*. This principle can be said to be implicit in the reasoning of Lind & Goldkuhl (2002) and Weigand & De Moor (2001). I will in this paper explicitly articulate this principle and use it when challenging the two-role thinking.

Connected with this principle is a quest for widening the analysis scope. The communication loop represents a *communication situation* or perhaps two connected communication situations; in DEMO terms the order phase and the result phase (figure 2). Communication loop modelling focuses on these situations and excludes what is external to them. What is in the situation is deemed important and what is outside the situation is deemed irrelevant. The concept of a communication situation is an important construct. Analysing communication situations is significant in business process modelling. Situational analysis must however be supplemented by trans-situational analysis. It is not only what is in the situation that is important for that situation. What is brought into that situation, as *trans-situational grounds*, should also be paid attention to.

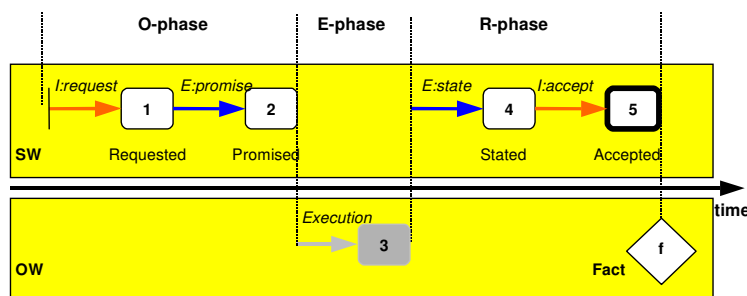


Figure 2: The basic pattern of the DEMO transaction (Reijswoud et al, 1999)

Why is it important to continue this discussion on communication loops? Is not enough said about two-role vs multi-role models in the earlier papers mentioned above? I think this kind of discussion is important for several reasons. The communication loop (with its two roles) is used in business process modelling as a generic template. As I conceive it to be an over-simplification of business processes, it can deceive people to perform such a restricted

analysis. Dietz (2002 p 73) makes a strong claim that “the DEMO transaction has proven to be a simple and universal construction block of business processes, in and between all kinds of organization”. I agree that it is a simple construction block; in my view a *too simple construct*, and what is worse, a rigid one that excludes many important aspects of business modelling. It is important to show possible users of two-role models the limitations of such models.

Moreover, communication loops have been strongly associated with the language/action perspective. I fear that many outside the LAP tradition conceive LAP approaches to be nothing but communication loop models. This might be so because the probably most famous LAP models (Action Workflow and DEMO) incorporate this kind of thinking. It is important for scholars outside the LAP tradition to see that LAP consists of many other approaches and constructs that do not rely on communication loop modelling. LAP is much richer than communication loops and it is important to show and develop this kind of richness and variety.

As can be read above, and also below, I am critical towards the approach of modelling business processes as communication loops. This should not be interpreted that I totally deny the idea of communication loops and its possible usage in some situations. It can be a nice and useful construct in some modelling situations. My criticism is towards the claims of universal applicability as formulated by Dietz (*ibid*); see quote above.

This paper can be read as a criticism towards communication loops. It is such a criticism, but it is, perhaps more important, also an articulation of an alternative view: a practice perspective including the principle of multi-responsiveness. This practice perspective expresses a much more nuanced way of conceiving business processes and organisations than communication loops. Goldkuhl & Röstlinger (1999) introduced this practice perspective in the LAP community and it has been later described in many papers elsewhere (e.g. Goldkuhl & Röstlinger 2003ab).

2 A case: To explain pizza baking

In order to clarify my positions I am using a simple case. I have chosen the pizza shop case as mentioned above. It has become a reference case in the LAP community (see references above and also Taylor, 2002). It is rather simple to understand, but involves also sufficient complexity in order to be used for a discussion of this kind. The use of a small and arranged example can of course be criticized as being a kind of "armchair" philosophising. I am fully aware that we should use larger and real-life examples and to pursue comprehensive empirical studies. I do not think, however, that we should rule out the use of fictitious examples. They have their roles in conceptual analysis at an introductory stage. This can be done in the spirit of what Wittgenstein (1958) says about starting with the simple and then scaling up to the more complex. For further research, I do think it is important with real-life examples.

A short introduction to the pizza shop example follows here. I have made some slight modifications and extensions to the example. There is a pizza-shop that bakes and delivers pizzas. In the pizza shop there are an order-taker, a pizza baker and a pizza delivery boy. There is a manager who also owns the pizza shop. Customers can phone their orders or visit the pizza shop for ordering and fetching pizzas. The order-taker receives orders and forwards

them to the pizza baker. When the pizza is ready, the pizza baker delivers the pizza either to a waiting customer or to the delivery boy for home delivery.

A communication loop distinguishes four communication steps: 1) A customer request, 2) a delivery promise from the pizza shop and 3) a delivery statement and 4) ended by an acceptance from the customer. The first two is part of what in DEMO is called the order phase and two last are parts of the result phase. In between these phases comes the baking of the pizza (the execution phase). In this example there will be embedded communication loops when orders are forwarded to the pizza baker and the delivery boy. These order forwardings with embedded loops have given rise to some of the earlier conceptual discussion; confer Weigand & De Moor (2001) and Lind & Goldkuhl (2002).

The way I proceed, using this pizza example, is to let a fictitious pizza baker, Giorgio, tell his stories about pizza baking and then to analyse these stories. These stories are of course made up, but as said above so is the case. I claim that something can be learned from these made-up stories, as long as they are plausible. Let us ask the pizza baker Giorgio some questions about his pizza baking. We visit him when he bakes pizzas and we ask him some questions. These questions and answers can be found in table 1.

When studying this case one can identify several grounds for the production of pizzas. There are besides the forwarded customer order (1-2) other grounds for the execution actions. There is a role assignment from the owner towards the pizza baker. The owner tells the employee what the job is (4-6). There are instructions about the production process to follow (7). These instructions involve procedural knowledge (know-how) as well as descriptive knowledge (know-that) about raw material and other circumstances. The menu expresses the product repertoire of the pizza shop to be followed in production (8-9). There are quality norms expressed by the management, which govern the work (11-13). There are also judgements made by customers that govern the actions of the producers (14-16). The analysis of the case will be continued in the next section.

Table 1: The pizza shop case - questions and answers

	Question	Answer
1	Hello Giorgio, why are baking this pizza?	Lucilla, the order taker gave me an order to bake a pizza Capriciosa.
2	So Lucilla tells you what do?	Yes, she forwards the orders from the customers.
3	Couldn't you take the orders from the customers yourself?	Well, I am quite busy baking the pizzas. There needs to be someone there to take orders.
4	Why is Lucilla taking the orders and you baking the pizzas? Couldn't it be the other way around?	My job is to bake pizzas –and Lucilla's job is to take orders.
5	Who has told you that you are the one to bake pizzas? This pizza and other pizzas as well?	Well, that's of course Aldo, the owner of the pizza shop. I am hired to be a pizza baker.
6	So, Aldo said to you bake pizzas?	Yes, it is my job here! And he is the one who decides.
7	OK, so he told you to bake pizzas. Did he also tell you how to bake pizzas or did you know that before?	Well I knew something before, but I got my instructions from Rikki, the old pizza baker. He told me about baking and the different ingredients and how to handle the oven.
8	Can I order any pizza here from you?	As long it is from our menu. The menu tells you the name of the pizzas and which ingredients there are.
9	Who have prepared the menu? Have you done it?	Oh no! It is Aldo, the owner of course. I bake according to the menu.
10	Do you bake good pizzas?	Yes they are great. They are very popular. We are very busy.
11	So it is due to you that Aldo's Pizza shop is running well?	He, he [laughing]. I think I do my job well. But there is the Aldo's taste of pizzas.
12	The Aldo's taste – what is that?	When I started to work here Aldo told me to remember, that Aldo's pizzas are well known to be rich in flavour of cheese and spices!
13	So you follow that ideal every day?	Yes, we must have good quality, otherwise we are out of business!
14	So when you bake this particular pizza you follow this exhortation from Aldo?	Yes, I do, but I also put on extra oregano on this pizza.
15	Why do you do that?	This is an order from John Smith. I know that he likes extra oregano.
16	OK, so he ordered extra oregano on the pizza?	No, but I remember once when he thanked me for the pizza. He said that he liked it when it really tastes of oregano.
17	OK, thanks Giorgio. Now I know a lot about the pizza baking logic!	OK, thanks to you. Pizza logic, is that a new kind of pizza...?

3 The principle of multi-responsiveness

The communication loop construct is explicitly based on speech act theory. This construct is also, however implicitly, based on the *adjacency pair* construct of conversation analysis (Sacks, 1992). An adjacency pair means a sequence of two connected utterances. Examples of adjacency pairs are question – answer, greeting – greeting, offer – acceptance, request – acceptance, complaint – excuse. An adjacency pair is an ordered pair of utterances (a first and a second) produced by different speakers. A first requires a second, and not everything counts as a second. The concept of adjacency pair has been further used and developed in dialogue theory (e.g. Linell, 1998; Schiffrin, 1994). The first is categorised as an *initiative* and the second as a *response*. However most utterances can be classified as both initiative and response. This is due to the principle of *double contextuality* of utterances in conversations. An utterance is both context-shaped (i.e. dependant on prior utterances) and context-renewing (i.e. creating conditions for possible next utterances).

In the seminal work by Winograd & Flores (1986) only implicit references are made to conversation analysis. Goldkuhl (2003) has made an analysis of the conversation-for-action scheme in Winograd & Flores (1986) and how this scheme is implicitly based on conversation analysis. Confer also Holm & Ljungberg (1996) and Aakhus (2004) for discussion on speech act theory vs conversation analysis in LAP.

In DEMO there does not seem to be any direct references to conversation analysis with the exception of Steuten (1998). Anyhow, the principle of sequencing utterances in initiatives and responses is obvious in DEMO communication loop modelling. The order phase of DEMO consisting of a request and a promise is a typical example of an adjacency pair. So is also the result phase consisting of a delivery statement and an acceptance.

As said in the introduction above, communication loop modelling can also be associated with a strict delineation of two related communication situations. In DEMO terminology: an actagenic situation (order phase) and a factagenic situation (result phase); confer figure 2. There are four generic communication acts in these situations. The execution (e-phase) is a situation relating the two communication situations to each other.

How should one interpret the execution of the production act in this initiative – response scheme? Can it be seen as a response? Is not the adjacency pair construct only valid for communication acts? Adjacency pair, initiative and response are concepts emanating from conversation analysis and dialogue theory. Originally they are concepts denoting communicative phenomena. However, there does not seem necessary to restrict the use of these concepts to communicative matters. There are close relations between linguistic and other behaviour. Vološinov (1985) says: "Verbal communication can never be understood and explained outside of this connection with a concrete situation." "In its concrete connection to a situation, verbal communication is always accompanied by social acts of a nonverbal character, and is often only an accessory to these acts, merely carrying out an auxiliary role". Confer also Andersen (1990), Goldkuhl (2001, 2003) and Lind et al (2003) for examples and analyses of the close connection and interdependence between linguistic and material actions.

A response can be a material act performed based on a verbal initiative. This is also in line with functional linguistics, where Halliday (1994) differentiates the generic function of demanding into two categories: demand for information (a question) and demand for goods & services (a command).

The execution (the production act) is a response to the initial communication situation (the order phase). It can be seen as a response to the request from the customer. But it follows also the promise of the performer. Without a promise, there would not be a production act. In that sense, the production act is a response to a collection of several antecedent acts. From the point of view of the customer the production act can be seen as a response to his request and the primary intended response.

It is time to re-focus the pizza shop case. What can be learned from this case concerning the character of responses? Is the baking of the pizza a response to the customer order? It sure is. Giorgio bakes the pizza because the customer John Smith asked for it. However the analysis that started in section 2, implies that this is not the whole story. There are other grounds for Giorgio baking this pizza. As said above there is a role assignment, a product repertoire (the menu) and a quality norm issued by the owner directed to Giorgio, the pizza baker. There are also instructions from the experienced pizza baker, and there is a former judgement from the customer. These different communication acts are not present in the actual pizza baking situation. They exist as memory traces by the pizza baker. He does however take them into account when baking the pizza. These are trans-situational social grounds brought into the situation by the pizza baker. They are not as apparent as the customer order. They are not what initiate the pizza baking. The customer is the trigger for the pizza baking, but without all the other background initiatives, the pizza baker would not bake the pizza in this way. Without the constitutive act of hiring Giorgio as a pizza baker (the role assignment), he would not bake any pizza at all at Aldo's pizza shop. When Giorgio bakes the pizza he responds to the role assignment of Aldo, the owner. What would be the responses of Aldo's role assignment "Your job is to bake pizzas!" if it would not be the baking of pizzas. Giorgio may pronounce an acceptance directly in the recruitment situation, but this must be followed by his actual baking of pizzas. An acceptance without any work done would not be seen as a proper acceptance. It could be challenged as an insincere communication act (Habermas, 1984).

When baking the pizzas, Giorgio follows the instructions of Rikki, the old baker. This is a response to Rikki, although Rikki will not be present when he bakes the pizzas. The presence of an initiator can however not be a valid criterion for what counts as an initiative. The other communication acts (the issuing of the menu and the quality norms and the judgements) will also influence the pizza baking. This implies that the pizza baking, in parts, can be seen as responses to all these communication acts. These acts will function as initiatives to the pizza baking, although in some cases it was never meant that way. Giorgio's adaptation to the former judgements of the customer John Smith was perhaps not in accordance with some particular intention of John Smith. Mr. Smith did perhaps not intentionally mean that Giorgio always should bake his pizzas with extra oregano. It was just a gesture of appreciation. Giorgio is however an attentive and service-minded pizza baker and does not forget the wishes of regular customers.

The baking of a pizza means at the same time that the pizza baker

- Executes a customer order
- Fulfills the work duties of being a pizza baker
- Complies to quality norms of the pizza shop
- Follows the instructions how to bake a pizza

- Follows the menu of the pizza shop
- Adapts to judgements and expectations of customers

In this way it is a *multi-functional action*. It is at the same time a *multi-responsive action*. It is responsive to several earlier actions directed to the pizza baker. It tries to meet explicit or implicit expectations of several other actors.

Weber (1978 p 4) made a classical definition of social action: "That action will be called 'social' which in its meaning as intended by the actor or actors, takes account of the behaviour of others and is thereby oriented in its course". My interpretation of this definition is that a social action (performed by an actor) has *social grounds* ("takes account of the behaviour of others") and *social purposes* ("thereby oriented in its course"). This has implications for how to study actions. As an inquirer we should search for the social purposes of conducted actions. What are the intended influences on other actors through performance of these acts? We should however also search for social grounds of an action. What does an actor take into account of others' earlier actions when he performs an action?

The principle of multi-reponsiveness means that an action can be a response to several different actions (initiatives). There may be one *triggering initiative* and several *background initiatives*. An initiative does not need to be present as an explicit utterance but only as a memory trace. Such background initiatives are *trans-situational social grounds* for the action and they are brought into the action situation by the actor himself as accounts for his actions. A response action follows naturally an initiative that is adjacent in time and place (a *present trigger*). An initiative can however be separated in time and place which will lead to *postponed responses*. An initiative may concern several following actions, not only one instance of an action. The customer order directs the baking of a particular pizza at one particular occasion. Several of the other initiatives (of background character) concern recurrent actions. Such background actions will thus be *rule-constituting*.

There is of course a difference between a present triggering initiative and non-present background initiatives. This difference should however not lead to a dismissal of background initiatives from an analysis of a business process. I do not claim that all possible background initiatives should be considered and modelled. What I claim is that an inquirer should be open-minded towards other relevant actions outside the pre-defined constructs of communication loop modelling. A rigid construct, as the Action Workflow loop or the DEMO transaction, hinders an inquirer to bring in other matters in his business model.

4 Communication loops vs multi-responsiveness: a summary

What I have described above are two principally different ways of thinking when analysing business processes and especially the communication and coordination in such processes. Communication loop modelling has a focus on a customer – performer interaction. It uses a pre-defined set of communicative acts, which are related in a typical way; the Action Workflow loop or the DEMO transaction.

Communication loop modelling seems to emphasise what is present in the communication situation. It starts with a customer request and ends with an accepted delivery. Using the pizza shop case I have modelled this kind of restricted analysis in figure 3 below. I have not used Action Workflow or DEMO for this modelling. Confer e.g. Dietz (2002) for DEMO

modelling of the pizza case. I needed a more neutral modelling technique in order to clarify the differences behind the two approaches.

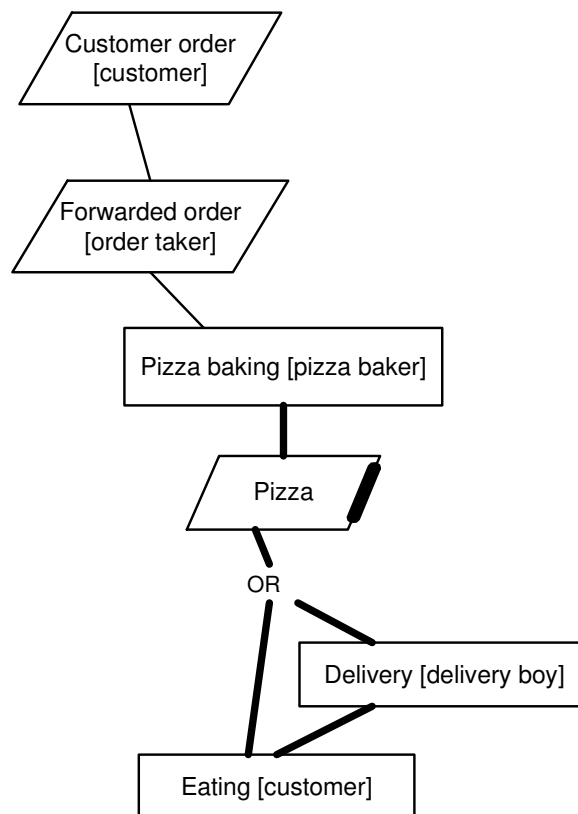


Figure 3: Restricted modelling of the pizza shop case

The figure 3 is not a full-blown communication loop analysis. I have left out several of the pre-defined acts (promise, delivery statement and acceptance) from a regular communication loop modelling. My focus is on analysing the production act of baking pizzas as a response to earlier actions. This means that I can, for reasons of simplification, leave out these other generic acts. It is important to note that this is not to be interpreted as a dismissal of such generic acts from communication modelling. I do realise the significance of analysis of delivery promises, delivery statements and delivery acceptances.

Figure 3 is a model describing actions and action objects with actors. The model is inspired by, but not in full compliance with action diagrams (e.g. Goldkuhl, 1996). The customer order is a result (an action object) of a communication act performed by the actor 'customer'. Pizza baking is an action performed by the pizza baker (the actor) resulting in the action object of the pizza. This baking is initiated by the forwarded order from the actor 'order taker'.

A more comprehensive model of this business process is depicted in figure 4. I have there included the background actions identified in the analysis above. Besides the forwarded customer order there are five more communication acts included in the analysis. These different communication acts have different functions in relation to the production act of baking a pizza:

- Customer order: requesting what kind of pizza to bake now

- Role assignment: constitutive for performing the production acts
- Quality norm: issuing what kind of result (quality) to strive for
- Menu: defining the production repertoire; what pizzas to bake
- Instructions: improving competence; how to bake and what to use for baking
- Customer judgement: expressing what a particular customer likes/dislikes and thus what do to for that customer

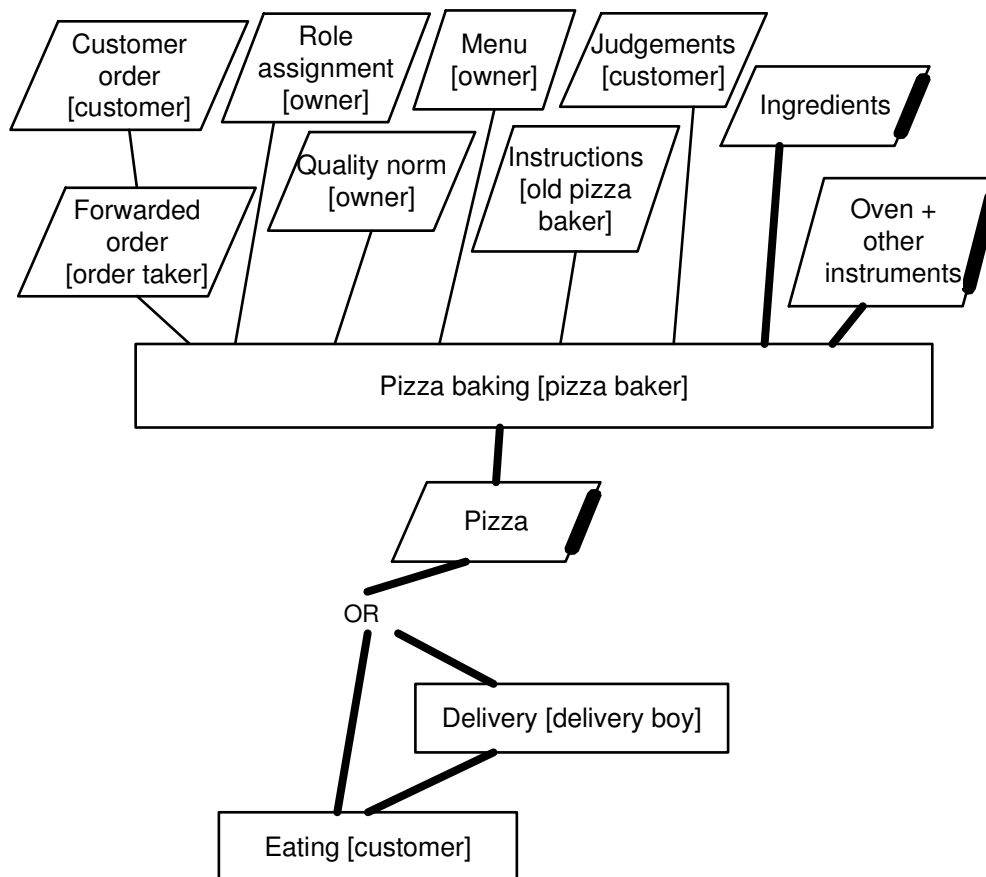


Figure 4: Modelling of the pizza shop case based on the principle of multi-responsiveness

In figure 4 I have also included material objects to be used by the pizza baker. What the material objects of ingredients and oven afford to the pizza baker is also important to take into account.

As said in the introduction above, there have been several earlier papers pursuing a critical analysis of communication loop modelling. Already in the first LAP workshop I argued towards the rigid construct of the Action Workflow loop (Goldkuhl, 1996). Inspired by ethnomethodology and conversation analysis I objected towards the use of pre-defined LAP constructs in Goldkuhl (2003). In Lind & Goldkuhl (2002) we characterize our own contribution as a second stage multi-role model in relation to Weigand & De Moor (2001) who were seen to present a first stage multi-role model. The concept of multi-role model refers to the inclusion of more roles than customer and performer as in the two-role models of Action Workflow and DEMO. The (second stage) multi-role model of Lind & Goldkuhl (2002) comprises communication acts of role assignments besides horizontal assignments

from customers. What has been presented in this paper could be seen as third stage multi-role model building on the earlier works of Weigand & De Moor (2001) and Lind & Goldkuhl (2002). Other types of communication acts (as e.g. quality norms, instructions) have been included in this analysis. Those other types of communication acts should not be seen as definitive. They are examples of possible communication acts, which might influence the production in a workpractice. They are formulated based on this fictitious case and it requires of course more empirical and theoretical work. The presented multi-role model in this pizza shop case is however in accordance with the generic categories of the workpractice theory of Goldkuhl & Röstlinger (1999; 2003ab; 2004). That theory has evolved through several cycles of empirical and theoretical work. The theory comprises a generic model of workpractices (figure 5). This model describes a workpractice in a generic sense and consists of generic categories of actions, actors and action objects. All categories in the pizza shop example correspond to categories in the generic model of workpractices.

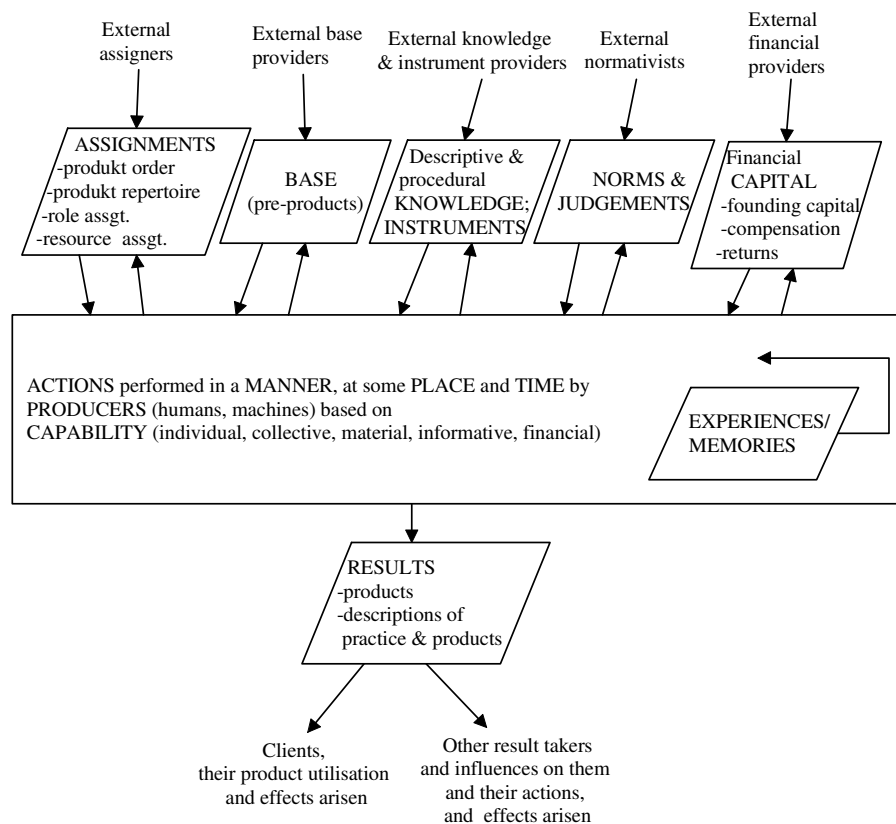


Figure 5: The generic model of a workpractice (from Goldkuhl & Röstlinger, 2004)

5 Concluding remarks

The main message of this paper is that a business process inquirer, being either a researcher or practitioner, should move beyond a restricted communication loop modelling. An inquirer should be attentive to other influential communication acts than those pre-defined in communication loop models. Something done in a workpractice is seldom just a response to one single initiative. It might be a multi-responsive act based on several different initiatives. Besides a present triggering initiative there might be other trans-situational background initiatives, which tacitly are brought into the situation. This should be accounted for in

business process inquiries. There is a risk using modelling notations based on communication loops. Such models may filter out other relevant aspects. If one yet uses such models, one should be prepared to complement the inquiry with other process models that leave room for other situational aspects to be studied and modelled.

Every model type emphasizes certain aspects at the expense of others. This is not unique in communication loop modelling. My arguments have been formulated against a restricted use of the communication loop construct where the inquirer might get a “tunnel vision” of communication loops and nothing else in business processes. I do not claim that all types of background initiatives identified through the pizza shop example should be included in every business process inquiry. This is far beyond my claims. I have used the pizza shop case in order to show the variety of possible background initiatives and hence the principle of multi-responsiveness. What I recommend is a more inductive way of investigating business processes with less use of pre-defined communication patterns (cf also Goldkuhl, 1996; 2003). The inquirer should be aware of the complexity of business processes and apply a way of thinking that renders a rich picture of the business process under scrutiny.

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